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EVOLUTIONARY AESTHETICS

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It. *Estetica evoluzionista*; Fr. *Esthétique évolutionniste*; Germ. *Evolutionäre Ästhetik*; Span. *Estética evolutiva*. Evolutionary aesthetics (EA) investigates the origins and evolution of aesthetic preferences and artistic behaviors, along with the underlying capacities that support these preferences and behaviors. EA is a multidisciplinary approach that intersects various disciplines – e.g. evolutionary psychology, biology, neurosciences, art history, archeology, anthropology, philosophical aesthetics – providing a comprehensive framework for understanding the deep-rooted biological and evolutionary underpinnings of human aesthetic preferences and artistic expressions. Central to EA, in fact, is the exploration of when, how and why aesthetic preferences and artistic behaviors originated in human history, as well as understanding whether these behaviors are evolutionary adaptations, by-products of evolutionary processes, or nonbiological cultural products (Killin 2021; Richards 2022).

THE EVOLUTIONARY APPROACH TO ART AND AESTHETICS: BREADTH AND DEPTH

One of the main traits of EA is its comprehensive scope. This becomes clear when we examine some of the core issues EA addresses – e.g. whether and how aesthetic preferences and artistic behaviors emerge over the "long periods" of the evolution of the human species; whether these behaviors are consistent with similar behaviors in non-human animals; whether there are 'aesthetic universals' of the human species independent of different historical and geographical contexts. Indeed, one of the key insights from evolutionary aesthetics is the identification of universal aesthetic preferences across different cultures, suggesting that both artistic behaviors and certain aspects of what humans find beautiful or appealing might have deep evolutionary roots. Instead of looking at certain types of art in specific situations, EA analyzes art behaviors and aesthetic experiences over time and across human cultures: it considers not only the present but also the distant past; it considers all cultures, not only Western art; it even considers whether there are art behaviors in other species.

EA has a comprehensive character also in another sense: it establishes an inclusive theoretical framework that potentially integrates different scientific approaches. As Richards (2022, 29) efficaciously puts it, "It [EA] asks us to think how genes (the molecular basis of development and heredity) build neurological

systems (sensory and cognitive structures in the brain) that affect psychology (behaviors, tendencies and preferences) in particular environments where behaviors influence survival and reproduction, generating selective forces and producing change over time. Consequently, [...] with evolutionary thinking, we see how genetics, neuroscience, psychology and ecology can potentially be integrated to contribute to a comprehensive understanding of art". Beyond merging these scientific areas, EA also bridges the gap with the humanities, including in its framework philosophical aesthetics, anthropology, art history, and musicology among others. In other words, EA adopts a multidisciplinary approach that weaves together diverse disciplines, providing a broad framework for exploring the biological and evolutionary foundations of human aesthetic preferences and artistic expressions. This also means that EA examines its object of study from many different perspectives, using a wide array of ideas, theories, and both theoretical and empirical tools.

In the next section, I will outline the core theory that gives EA its characteristic breadth and depth: the evolutionary framework, spanning from Darwin's original concepts to contemporary evolutionary biology.

THE THEORETICAL FRAMEWORK: FROM DARWIN TO CONTEMPORARY EVOLUTIONARY BIOLOGY

In his 1871 work, *The Descent of Man and Selection in Relation to Sex*, Darwin introduces his theory of aesthetic choice as a powerful force driving swift and unpredictable changes in species' structures, distinct from natural selection. Darwin highlights a pivotal idea: the evolution of a sense of beauty in both nonhuman and human animals is not due to natural selection but to what he labelled sexual selection. These two evolutionary mechanisms are fundamentally different. Sexual selection is based not on survival struggles but on competition among males for females, where the outcome does not lead to the death of the unsuccessful competitor but rather to reduced or no offspring (Darwin 1859, 88). Darwin acknowledged that while natural selection, favouring traits that enhance survival, explains much of nature's design, it doesn't account for all, especially not sexual dimorphism, nor ornamental features like the elaborate tails of peacocks and Argus pheasants, which seem more burdensome than beneficial for survival. These traits, costly and disadvantageous for escaping predators, would not likely be favoured by natural selection (Richards 2012). Instead, sexual selection, driven by female preferences – a factor as variable as taste – plays a crucial role in the development of sexual dimorphism and diverse secondary sexual characteristics (Menninghaus 2003; see also Bartalesi and Portera 2015).

For the half-century after Darwin, sexual selection was largely overlooked until R. A. Fisher revived it in a 1915 paper, further elaborating on it in his 1930 publication, *The Genetical Theory of Natural Selection* (Richards 2012, 2022; Prum 2017). Fisher's work, especially after the 1958 reprint of his book, brought renewed attention to sexual selection and female choice, with scholars like John Maynard-Smith, George C. Williams, David Buss, Amotz Zahavi, and Robert Trivers among others.

Understanding how natural selection and sexual selection interact can be complex. As means of a clarifying (I hope) example, take Zahavi's (1997) handicap principle, which suggests sexual ornaments signal fitness precisely because they are costly. Sexual selection may initially seem at odds with survival

selection if a sexually desirable trait, like the peacock's tail, reduces survival chances by increasing metabolic demands and hindering escape from predators. However, traits favored for reproduction can align with survival benefits – traits like health, intelligence, strength, and agility are attractive and also improve survival chances. Zahavi's principle indicates that a costly sexual trait, seemingly at odds with survival, must indicate the individual's overall fitness. For instance, only the strongest, quickest, and healthiest peacocks can afford to grow large, vibrant tails without compromising their survival. Thus, a peahen selecting a mate with the most impressive tail likely chooses the fittest male, ensuring their offspring inherit this fitness and the mother's preferences. This leads to a self-reinforcing cycle where the trait and the preference for it amplify through generations, resulting in even more extravagant tails and a stronger preference for them.

There is some debate, though, over the exact mechanisms of sexual selection (Prum 2017) and also over the overall evolutionary framework, open questions including e.g. the genetic underpinnings of traits favored by either selection process, epigenetic factors that affect gene expression and development, and ecological influences on behaviors impacting survival and reproduction (Richards 2022). Along these lines of inquiry, recently EA research has examined the roles of niche construction and gene-culture coevolution in shaping aesthetics and art (see e.g. Bartalesi & Portera 2015; Richards 2022).

Disagreements also emerge around a fundamental question of EA: whether aesthetic preferences and artistic behaviours evolved as adaptations, as evolutionary by-products, or as purely cultural technologies (Killin 2021). In other words, are these traits direct outcomes of evolutionary selection, serving a specific advantageous function – in terms of survival or reproduction – for ancient humans? Or are they incidental outcomes of evolutionary processes, side effects of other adaptations? Or are they non-biological cultural creations, only loosely connected to biology in the broadest, most superficial sense? The evolution of aesthetic preferences and various art forms, as they relate to these questions, will be the focus of the next and concluding section.

EXPLAINING EVOLUTIONARILY AESTHETIC PREFERENCES AND THE ORIGIN OF ART FORMS

Evolutionary psychologists suggest that our ability to perceive and appreciate beauty and the sublime, along with their opposites, may have been shaped by natural selection, especially in relation to the environment (for an overview see Killin 2021). For instance, it's theorized that early humans who found savannahs, woodlands, and waterside areas aesthetically pleasing – and thus chose to live in these resource-rich environments – were more successful in passing on their genes and aesthetic preferences compared to those who favored less hospitable environments. This preference might explain why modern humans often enjoy landscapes like parks and lakes (see e.g. Dissanayake 1988; for scepticism see Davies 2012, 2018). Furthermore, evolutionary theories have been used to explain preferences in human beauty, sexual attraction, and mate selection, noting differences in what men and women find attractive in potential partners (see e.g. Dutton 2009). Similar evolutionary perspectives have been applied to our appreciation of non-human animals, suggesting that these preferences also have a basis in our evolutionary history (see e.g. Davies 2012, 2018; Killin 2013).

Shifting the focus to the origins of art forms, EA examines how art may have played an adaptive role throughout evolution. I briefly consider different evolutionary hypotheses for music, narrative, and visual arts.

Starting with music, while Steven Pinker (1997) is skeptical of a direct adaptive function of this art form, viewing it as a mere "pleasure technology" and calling it an "auditory cheesecake", Ellen Dissanayake (1995) already hinted at the possibility that music and dance might synchronize group activities, albeit without detailing the mechanism. William McNeill (1995) delved deeper, finding that synchronized movement fosters "muscular bonding", which enhances group cohesion and empathy. This unity may have empowered our ancestors to collaborate more effectively in survival tasks like securing food and protecting territory. Steven Mithen (2006) supports McNeill but attributes the effect to emotional rather than muscular coordination. By manipulating emotions, music aligns individuals in a unified state, enhancing cooperation. Making music blurs personal identities into a collective being, streamlining decisions and actions (see Carroll 2014).

As for the visual arts, Pinker (1997) likened them to music as "pleasure technologies" stimulating evolved responses. He viewed them as technological achievements bypassing sensory safeguards for pleasure. In contrast, Denis Dutton (2009) focused on the content of visual art, especially landscape paintings, arguing that art preferences mirror ancestral habitat preferences, drawing on a global survey by artists Vitaly Komar and Alexander Melamid. Johan De Smedt and Helen De Cruz (2012) suggested that the visual arts act as "tags" marking group membership. Dissanayake (1995) attributed evolutionary purposes to visual arts through "making special", where marked objects command greater care and attention, facilitating advantageous behaviors.

Lastly, the narrative arts – e.g. storytelling, literature, poetry, and drama. Steven Pinker (1996) viewed storytelling as an evolved adaptation that acts like cognitive tools to prepare for life's challenges. Joseph Carroll (2007) emphasized storytelling's role in promoting self-awareness, engaging emotions, and enhancing empathy. John Tooby and Leda Cosmides (2001) argued that storytelling refines skills in managing representations of problems and solutions. Denis Dutton (2009) expanded on storytelling's utility, suggesting it provides factual information, even when largely fictional.

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